REMARKS

Claims 1-20 are pending. Claims 1, 2 and 3 have been amended in order to clarify these claims. No subject matter is being added.

On page 2 of the Office Action, an objection to claim 1 is raised on account of the use of the phrase "when in use". The Office Action suggests "when in use." Applicants are traversing this objection.

Applicants cannot understand the nature of the objection. The phrases are properly recited in claim 1. If the Office Action is suggesting that a period should be inserted after the work "use", this is equally puzzling as it would result in a period in the middle of the claim. It is therefore submitted that the objection has been improperly formulated and that perhaps something else was intended. Applicants therefore respectfully request withdrawal of this rejection.

On page 2 of the Office Action, an objection to claims 1-3 is raised on the grounds that the term "incrementation" is not a word. Although a search using the Google search engine reveals a number of definitions for this word, Applicants have been happy to change recitals of the word "incrementation" in claims 1-3 to the word "increment". Applicants therefore submit that this objection has been overcome.

On page 2 of the Office Action, an objection to claim 3 has also been raised on the grounds that this claim recites the words: "the a". This is a typographical error and Applicants thank the Examiner for pointing out the error. The claim language has been corrected to recite "the dynamic communication slot" instead of "the a dynamic communication slot". Applicants therefore submit that this objection has been overcome.

On page 2 of the Office Action, Applicants have been reminded to use correct claim identifiers in relation to claims 14-20. Previous incorrect use was due to a typographical error and the Examiner is thanked for pointing out the error. Applicants confirm that correct status identifiers have now been used in relation to claims 14-20. Applicants therefore submit that this objection has been overcome.

On page 3 of the Office Action, claims 1, 2, and 14-20 are rejected under 35 USC § 112 for reciting newly added claim limitation "when in use" implying a mode of operation for the claimed communication nodes, a receiver, and a transmitter, for which Applicants specification

is alleged not to provide explicit or inherent support as a mode of operation and therefore constitutes new matter. Applicants are traversing this rejection.

Elements of the communication system, for example nodes, as described in Applicants' specification are clearly electrically powered. Consequently, a communication node has a powered-down (unused) and a powered-up (used) state. A person skilled in the art would readily appreciate this fact and understand that when unused, the communication node would be unable to operate as recited in the claims 1, 2, and 14-20. Applicants therefore respectfully request withdrawal of this rejection.

On page 3 of the Office Action, claims 1-20 are rejected under 35 USC § 112 for claims 1-3 reciting newly added limitations "time unit" and "sub-time unit", which are alleged not to be defined in Applicants' specification. Applicants are traversing this rejection.

It is respectfully submitted that basis is present in the specification, because reference is made to a time base (and is recited in claims 1-3) comprising time slots. As time slots are simply notionally elapses of clocks or units of time, it is submitted that the replacement of the term "timeslots" with the term "time unit" is acceptable and preferable in order for the language of the claim to be more consistent with the recitals relating to the time base. The same principle applies to the replacement of "sub-time slots" with "sub-time units". Furthermore, the specification makes reference to the concept of microticks and these too are elapses of units of time. Consequently, the skilled person reading the specification would appreciate that the time base comprises consecutively elapsing time units and that each consecutive time unit of the time base comprises at least two elapsing sub-time units. Applicants therefore respectfully request withdrawal of this rejection.

On page 3 of the Office Action, claim 2 has been rejected under 35 USC § 112, first paragraph, for comprising undue breadth. In this regard, the Office Action alleges that the language of claim 1 recites "a communication node" arranged to perform certain functions, wherein the sole claimed structural feature of the node is a "counter". The Office Action therefore concludes that the communication node pertains to a "single means". Applicants respectfully submit that the rejection is improper and Applicants are traversing this rejection.

MPEP § 2164.08(a) states:

> A single means claim, i.e., where a means recitation does not appear in combination with another recited element of means, is subject to an undue breadth rejection under 35 U.S.C. 112, first paragraph. In re Hyatt, 708 F.2d 712, 714-715, 218

USPQ 195, 197 (Fed. Cir. 1983) (A single means claim which covered every conceivable means for achieving the stated purpose was held nonenabling for the scope of the claim because the specification disclosed at most only those means known to the inventor.). When claims depend on a recited property, a fact situation comparable to Hyatt is possible, where the claim covers every conceivable structure (means) for achieving the stated property (result) while the specification discloses at most only those known to the inventor.

However, the above rejection is only applicable to a means-plus-function type claim. In *In re: Hyatt*, the claim in question was a means-plus-function claim having only a single means. Indeed, the claim recited:

"*Fourier transform processor comprising incremental means for incrementally generating the Fourier transformed incremental output signals in response to the incremental input signals.*"

The court held that a single means covering every conceivable means for achieving a stated purpose is improper, but only held this with respect to means-plus-function claims. Means-plus-function claims are a special class of claims provided for under 35 U.S.C. § 112, sixth paragraph, that are intended to cover structures, materials or acts covered in the specification. Clearly, if a means-plus-function claim reads on all possible means for achieving a stated purpose, this contravenes 35 U.S.C. § 112, sixth paragraph.

However, claim 2 of the present application is not a means-plus-function claim, but rather an apparatus claim that recites structure in the body of the claim (namely, a counter). Indeed, the word "means" is not even recited in claim 2; there is no means-plus-function recital in claim 2.

It is therefore respectfully submitted that this rejection has been improperly applied and Applicants request that the rejection be withdrawn.

On page 4 of the Office Action, claims 1-10 and 12-19 are currently rejected under 35 USC § 102(b) as being anticipated by the FlexRay Requirements Specification, already on record and provided by Applicants with the IDS filed June 3, 2005 (hereinafter referred to as "Belschner et al."). Applicants are traversing this rejection.

The application presently contains three independent claims, namely claims 1, 2 and 3. Below, Applicants explain that Belschner et al. does not teach all of the elements of claims 1, 2 and 3.

In overview (because, unlike a patent publication, Belschner et al. is part of a technical specification), Belschner et al. relates to a requirement specification and high-level system description for an automotive network. The document describes various operational aspects of a communications system, including nodes. It describes, in overview, timing issues and data structures to be used.

Section 2.2 of Belschner et al. describes, in overview, node topology and use of different communications channels. Section 2.3 explains (and shows) the definition of a communication cycle comprising a static segment and a communication cycle in a purely dynamic system.

In this regard and before proceeding further, as in previous responses to Office Actions relating to this application it is important to understand the nature of a time base. In this respect, the term "time base" is one that is widely used across many fields of endeavor, but rarely recorded in writing. The skilled person would nevertheless understand that a time base is a measure of a unit of time that is consistent for the sake of measuring elapse of time. The IEEE 100 publication entitled "The Authoritative Dictionary of IEEE Standards Terms" (7th edition) defines "time base" as:

> "*A stable, periodic signal usually a square wave, used to synchronize and to provide power to circuits"* [Emphasis added]

While the definition clearly relates to electronics, it is submitted that the notion of a stable periodic signal is of relevance to the term "time base" in the context of a FlexRay communication system.

Turning to Belschner et al., the skilled person would therefore understand that it is the communication cycle (Figure 4 of Section 2.2) that is the time base and serves as a measure of time. It is submitted that it is widely understood that this measure of time is one of the time bases for a FlexRay communications system as described in Belschner et al. The frame cycle time is the time taken, where applicable, for the combination of the static segment and the dynamic segment to elapse. Indeed, this interpretation is consistent with page 6, lines 9-11 of Applicants' specification, which discusses the "communication cycle".

Section 2.5 (not discussed in the Office Action) relates to a communication scheme used by FlexRay nodes. Section 3 of Belschner et al. concentrates on describing the protocol employed for data transfer. In particular, section 3.2 discusses the transfer of frames during the

communication cycle, section 3.2.1 concentrating on aspects of the static segment and section 3.2.2 concentrating on aspects of the dynamic segment.

Section 3.3, in particular section 3.3.1, describes the FlexRay frame format in relation to Figure 7.

Belschner et al. describes a communication system that can comprise a plurality of communication nodes (Nodes A, B, C, D, etc: Figure 3), each being arranged to communicate frames of data with other nodes during a dynamic section associated with communication of a dynamic communication slot and each dynamic communication slot having a communication slot number (Figure 4). Each of the plurality of communication nodes is arranged to communicate in accordance with a time base (the communication cycle; Figure 4). According to Figure 4, the communication cycle comprises a static segment and a dynamic segment, or just a dynamic segment. As can be seen from Figure 4, the numbered colored blocks representing frames (having ID numbers) are not contiguous and a gap exists between the "start" of a slot and the commencement of transmission of a frame. Indeed, this is more precisely shown in Figure 6 of section 2.5, where time slots are indicated and frame transmission is also shown, but more importantly, the frame transmission is shown to be within the slot with a buffer margin either side of the frame. Indeed, section 2.5 comments that each node must be able to make use of a distributed clock and that each node must send frames inside a predefined slot or/and inside the dynamic segment. Section 2.5 also explains that the transmission of frames must be subdivided into 3 phases: a bus guardian must enable access to the bus, it must be signaled that a frame should be transmitted, and the transmission of the frame itself. Clearly, this does not take place immediately upon commencement of a time slot. Figure 6 supports this understanding.

Referring to claim 1, claim 1 recites a communications system for providing media arbitration via a communications protocol using consecutive communication slots, the system comprising:

- a plurality of communication nodes, each node being arranged to communicate frames of data with other nodes of the plurality of communication nodes during a dynamic section associated with communication of dynamic communication slots, and
- each dynamic communication slot having a communication slot number; wherein
- each of the plurality of communication nodes is arranged to communicate, when is use, in accordance with a time base comprising consecutively elapsing time units associated with the dynamic communication slots,

- each consecutive time unit of the base comprising at least two elapsing sub-time units and a transmission action point located at a boundary between two of the at least two sub-time units;
- the each node is arranged to start and end, when in use, transmission of each frame of data at the transmission action point associated with the time base; and
- a counter arranged to determine a communication slot number operable to increment the communication slot number if no communication is ongoing at the end of a dynamic communication slot and to suspend increment of the communication slot number if communication is ongoing at the end of the dynamic communication slot.

However, and with particular reference to the underlined features of claim 1 above, cited Belschner et al. fails to teach that each consecutive time unit of the base comprises a transmission action point located at a boundary between two of at least two sub-time units, and that the each node is arranged to start and end, when in use, transmission of each frame of data at the transmission action point associated with the time base, and the provision of a counter arranged to determine a communication slot number operable to increment the communication slot number if no communication is ongoing at the end of a dynamic communication slot and to suspend increment of the communication slot number if communication is ongoing at the end of the dynamic communication slot, as recited in claim 1.

In contrast, the Office Action suggests that the provision of the CRC code of a frame, located at the end of the frame, constitutes a transmission action point and that because the CRC allegedly denotes the end of one frame another one begins immediately afterwards. However, Applicants regret to say that this simply is not how a communication node operates according to Belschner et al. As explained above, a latency exists between the end of a frame and the commencement of a new frame in a new time slot as shown in Figures 4 and 6, Figure 6 being more akin to a timing diagram than Figure 4. Consequently, contrary to what is stated in the Office Action on page 5, lines 6-13, the CRC does not denote a point where transmission of one frame ceases and another starts, not least because the frame can be of variable length (see DLC in frame structure). Furthermore, the CRC is a structural aspect of a data frame and not a feature of a time base. Claim 1 requires the consecutively elapsing time units of the time base to comprise the transmission action point, not the data frame. For these reasons, the CRC does not constitute the transmission action point.

Furthermore, lines 17-19 make brief reference to section 2.4, section 3.2.2 and Figure 4 and the assertion that the dynamic segment offers collision-free access to the communication medium and frame length in the dynamic segment is variable). While this may be the case, this assertion and the references to sections 2.4 and 3.2.2 and Figure 4 do not teach a counter arranged to determine a communication slot number. Furthermore, these references in Belschner et al. furthermore do not teach the counter being operable to increment the communication slot number if no communication is ongoing at the end of a dynamic communication slot and to suspend increment of the communication slot number if communication is ongoing at the end of the dynamic communication slot. Indeed, this is something that is not inherent to the FlexRay standard and so unsurprisingly not disclosed by Belschner et al.

In view of the reasoning provided above, Applicants submit that Belschner et al. does not anticipate claim 1.

Claims 4-10, and 12 depend from claim 1. By virtue of this dependence, claims 4-10, and 12 are also not anticipated.

Claim 2 is directed to a communication node and corresponds to the system of claim 1. Consequently, the arguments set forth above in support of claim 1 apply equally to claim 2. As such, it is therefore respectfully submitted that Belschner et al. fails to teach each consecutive time unit of the time base compries a transmission action point located at a boundary between two of at least two sub-time units, the node is arranged to start and end transmission, when in use, of each frame of data at the transmission action point, and that the node comprises a counter arranged to determine the communication slot number operable to increment a communication slot number if no communication is ongoing at the end of a dynamic communication slot and to suspend increment of the communication slot number if communication is ongoing at the end of the dynamic communication slot, as recited in claim 2.

In view of the reasoning provided above, Applicants submit that Belschner et al. does not anticipate claim 2.

Claim 3 is a method claim corresponding to the system of claim 1. Consequently, the arguments set forth above in support of claim 1 apply equally to claim 3. As such, it is therefore respectfully submitted that Belschner et al. fails to teach providing a system wide time base comprising consecutive time units, each consecutive time unit of the time base comprising a transmission action point located at a boundary between two of at least two sub-time units and the transmission of each frame of data starts and ends at the transmission action point, and that

each communication node determines the communication slot number by incrementing the communication slot number if no frame of data is communicated at the end of a dynamic communication slot and suspending increment of the communication slot number if a frame data is communicated at the end of the dynamic communication slot, as recited in claim 3.

In view of the reasoning provided above, Applicants submit that Belschner et al. does not anticipate claim 3.

Claims 13 to 19 depend from claim 3. By virtue of this dependence, claims 13 to 20 are also not anticipated.

On page 8 of the Office Action, claims 11 and 20 are rejected under 35 USC § 103(a) as being unpatentable over Belschner et al. in view of US patent no. 5, 537, 549 (hereinafter referred to as "Gee"). Applicants are traversing this rejection.

Claims 11 and 20 are dependent upon independent claims 1 and 3, respectively. In view of the reasoning provided above in support of the patentability of claims 1 and 3, respectively, Applicants submit that claims 11 and 20 are allowable for this reason at least.

Lastly, it is notable that the Office Action did not provide precise particularisation as to which specific features of Belschner et al. "mapped" to the features of claim 1. If any future Office Action is contemplated, Applicants respectfully request greater detail of explanation so that Applicants can provide a satisfactorily precise and focused response to any points raised.

The case is believed to be in condition for allowance and notice to such effect is respectfully requested. If there is any issue that may be resolved, the Examiner is respectfully requested to telephone the undersigned.

Respectfully submitted,

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